U.S./USSR/ SUBMARINES JENNINGS: In Eastern Europe this week, the Warsaw Pact countries are holding a series of military exercises, and as always the Western Alliance is watching closely to see whether there are any new maneuvers, any new tactics, or any new weapons developments. Tonight we want to focus on an aspect of the East-West arms relations in which the Soviet Union and the United States have invested a great deal of time and effort. It is an area where the United States, at this point, is very far ahead and where it wants to stay ahead. Here's our Pentagon correspondent, John McWethy.

MCWETHY: It is one of America's most deadly weapons, a nuclear-powered, hunter-killer submarine. This \$750 million ship is on maneuvers in the Caribbean. Over hundreds of square miles in this particular area, the U.S. has literally wired the ocean bottom for sound, making it one of the world's largest weapons laboratories. All the information from the underwater hydrophones flows to Andros Island in the Bahamas to a computer center. Every day some American submarine is going to war off this island, a simulated war that is monitored by these operators and later used to grade performance of the submarine crew, skipper, and weapons. (Film clip: footage of simulated submarine attack.) And while the crew goes through its paces, back on shore every step of the mock battle is being monitored by computers. VOICE OF COMMANDER: Man battle stations. (Film clip: footage of missile launch.) VOICE OF COMPUTER OPERATOR (Demonstrating test monitors): The weapon is searching; it will acquire the surface vessel. He's shutting down up at the surface at that time.

MCWETHY: If the U.S. has a military advantage over the Soviet Union, it is most clearly represented right here by an American nuclear submarine. It's a marvel of space age technology about which the Navy would just as soon not comment. Officially, the Navy will acknowledge only that its submarines can go 20 knots and dive to 400 feet; that, say the experts, is a laughable understatement. Standard reference books put top speed at above 30 knots and maximum depth beyond 1,500 feet. Intelligence sources say, however, that new Soviet submarines run faster, dive deeper, and worse, they outnumber American submarines three to one. But the men who spend their lives aboard these underwater arsenals, often not seeing the sun or breathing fresh air for three months at a time, they say it is not how fast or how deep you can go but how quiet you are that makes the difference. That is where America holds the edge. CMDR. MIKE HEWITT (U.S. Navy): If we were to get into a one-on-one with a Soviet submarine, there's no doubt in my mind that we would come out on top. CONTINUED

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MCWETHY: America has another edge as well, something else the Navy would just as soon not talk about. With an array of listening devices that stretch across the entire Northern Atlantic, the U.S. routinely tracks movement of Soviet submarines as they come and go from home port. Not only is this listening network vast and its hydrophones incredibly sensitive, but it is backed up by some of the world's most powerful computers. They sift through ocean noises, identifying not only the submarine type but often a particular boat by its unique noises or acoustic fingerprint. Every American submarine is equipped with a library of these computerized fingerprints, allowing a skipper to know within minutes of a first blind contact what the enemy looks like. HEWITT: Submarines have a unique role; we're much like a fighter aircraft, that we go out to pick on and find other ships, other submarines that are operating in a time of war...

MCWETHY: Life aboard an American submarine includes round-the-clock operations for months at a time. The only limitation for how long a sub can stay submerged is food for the crew. Living is very close. For example, there are not enough beds, so the crew must practice what is called 'hot bunking;' when one man climbs out, another gets in. UNIDENTIFIED SUBMARINE OFFICER 1: Raise number one scope. UNIDENTIFIED SUBMARINE OFFICER 2: Raise air to surface.

MCWETHY: Because good submarine officers are hard to find, during a 20-year career a submariner can look forward to a staggering 14 years of sea duty; the Navy is trying to lower that to 11. So why are the two kinds of submarines, the missile boats and the hunter-killer subs, so vital to America's defenses? Look at what they can do. One of the new Trident missile submarines carries more explosive punch with its load of nuclear missiles than all the bombs dropped in World War II -- one submarine. The U.S. has 34 boats with a similar punch. The Soviets, of course, also have such ballistic missile submarines, and that's what makes the hunter-killer sub so important. Its job: find and destroy Russia's missile boats before the Soviets find and destroy ours. In recent years, Soviet missile boats have taken to hiding under the polar ice cap. Two of America's most potent detection mechanisms are worthless when the Soviets do this, antisubmarine surface ships and aircraft. That leaves one primary weapon to go after these Soviet missile boats, the hunter-killer submarine. That's why Congress is being asked this year to start funding research for an entirely new class of attack submarine, one that will be bigger, even quieter and will cost more than \$1 billion a copy. It's also why Congress, after much debate, will probably give the Navy exactly what it wants. John McWethy, ABC News, the Pentagon.